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PS8.

The Effect of Injectable Biocompatible Elastomer (PDMS) on the Strength of the Proximal Fixation of EVAR-grafts

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Objectives: A major concern in the long-term success of EVAR is stent-graft migration, which can cause type I endoleak and even aneurysm rupture. Fixation depends on mechanical forces between the graft and the aortic neck. Therefore there are anatomical restrictions for EVAR, such as short and angulated necks. To improve the fixation of EVAR-grafts, elastomer (PDMS) can be injected in the aneurysm sac. The support given by the elastomer might prevent dislocation and migration of the graft. The aim of this study was to measure the influence of an injectable biocompatible elastomer on the fixation strength of different EVAR-grafts in an in-vitro model.

Methods: The proximal part of 3 different stent grafts (Gore Excluder®, Vascutek Anaconda® and Medtronic Endurant®) was inserted in a bovine artery with an attached latex aneurysm. The graft was connected to a tensile testing machine, applying force to the proximal fixation, while the artery with the aneurysm was fixated to the set-up. The force to obtain graft dislodgement (DF) from the aorta was recorded in Newtons (N). Three different proximal seal lengths (5, 10 and 15 mm) were evaluated. The experiments were repeated after the space between the graft and the latex aneurysm was filled with the elastomer. Independent sample T-tests were used for the comparison between the DF before and after elastomer treatment for each seal length.

Results: The mean DF (mean ± SD) of all grafts without elastomer sac filling for a proximal seal length of 5, 10 and 15 mm were respectively, 4.4 ± 3.1N, 12.2 ± 10.6N and 15.1 ± 6.9N. After elastomer sac-filling the dislodgement forces increased significantly ($p < 0.001$) to: 20.9 ± 3.8N, 31.8 ± 9.8N and 36.0 ± 14.1N.

Conclusions: The present study shows that aneurysm sac filling may have a role as an adjuvant procedure to the present EVAR technique. The strength of the proximal fixation of 3 different stent-grafts increases significantly in this in-vitro setting.

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PS10.

Aortic Neck Changes and Sac Shrinkage After Anaconda™ Stent-graft: Midterm Results

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Objectives: To evaluate mid-term clinical outcomes after use of a new commercially available device for endovascular repair of abdominal aortic aneurysm (EVAR).

Methods: Patient's demographics, aneurysm morphology, perioperative and follow-up outcome variables of all patients treated with Anaconda bifurcated stent-graft between 2005 and 2009 were prospectively collected into a dedicated database. Patients were followed up at 1, 6 and 12 months and yearly thereafter with spiral computed tomography angiography. Aortic neck and aneurysm sac evolution were analyzed by comparing mean diameters at different follow-up intervals. Kaplan-Meier analysis was performed to evaluate midterm clinical success of the treatment.

Results: A total of 97 consecutive patients (85 male, mean age 77.5 ± 6.6 years) were treated during the study period. Mean follow-up duration was 36.4 ± 9.3 months (range 1-51). There were 12 type II endoleak (18.4%), 5 reintervention (7.7%) and one case of aneurysm related mortality (1.5%). No type I or III endoleak and no migration or conversion were observed. Aortic neck remained substantially stable during the follow-up (mean aortic neck diameter 26.4 ± 4.1 mm at 1 month, 26.8 ± 3.8 mm at 36-months; $p = 0.6$). There was a significant sac shrinkage (mean AAA diameter 53.7 ± 7.2 mm preoperatively, 35.4 ± 15.3 mm at 36-months; $p = 0.02$). Kaplan-Meier estimates showed a 36 months freedom from endoleak, reintervention and sac enlargement of 63.9%, 87.3% and 89.3%, respectively, with a cumulative survival of 83.7%.

Conclusions: EVAR with Anaconda stent-graft represents a safe and effective alternative to open surgery in patients with suitable AAA. Midterm results show significant aneurysm sac shrinkage in absence of proximal aortic neck modifications.

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